

Hoback Drinking Water Background



Hoback Drinking Water Stakeholder Group Recommended Options Public Meeting

Munger Elementary School: 02.24.2020 6:25pm

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Outline

- Two big rivers, limited groundwater
- Human influence
- Human health
- Increasing nitrate and treatment
- Drinking Water Studies
- Teton County and Teton Conservation District
- Stakeholder Group
- Segue to Stakeholder Recommended Options



How is water in short supply at the Hoback/Snake confluence?

- Due to geologic conditions, groundwater is limited and largely disconnected from the rivers
- Aquifer character: low quantity, sulfur rich, not isolated from surface impact (bacteria and nitrate)
- In short, water has been an issue in southern Teton County before current water issues arose



What has changed?



- **Public Water System data provides window into water changes**
 - At least yearly sampling
 - Publicly available for review and analysis
- **Nitrate increases are well documented and have required treatment**
 - Source is not entirely clear
 - Greater than 2 mg/L indicates human influence
 - High concentrations and spatial expansion may indicate wastewater

Human Health



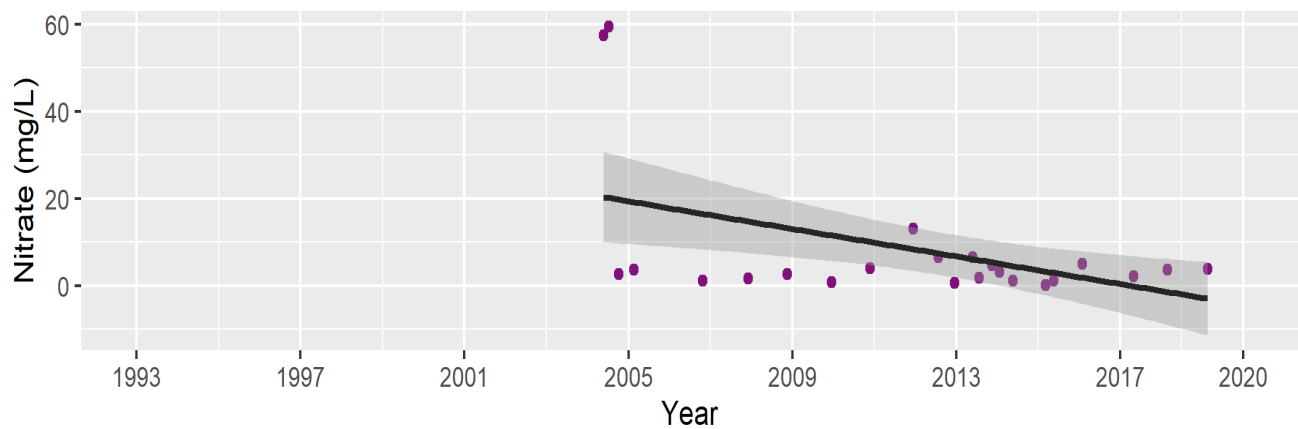
- **Nitrate is regulated by EPA in public water systems**
 - 10mg/L to protect against blue baby syndrome (methemoglobinemia)
 - Pregnant mothers and young children
 - Some evidence that nitrate can be carcinogenic and cause birth defects, although this is a developing science
- **Nitrate is water soluble and therefore travels to groundwater**
 - Can indicate presence of other contaminants
 - Ideally, wells are isolated from the surface, but that is not common here

Back to what has changed...

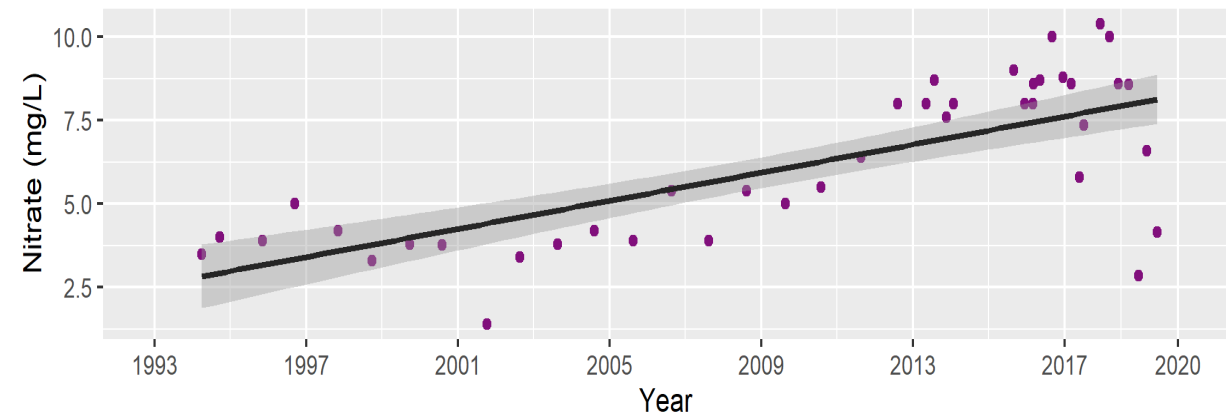
Nitrate concentrations in southern Teton County have changed

EPA Public Water System Data

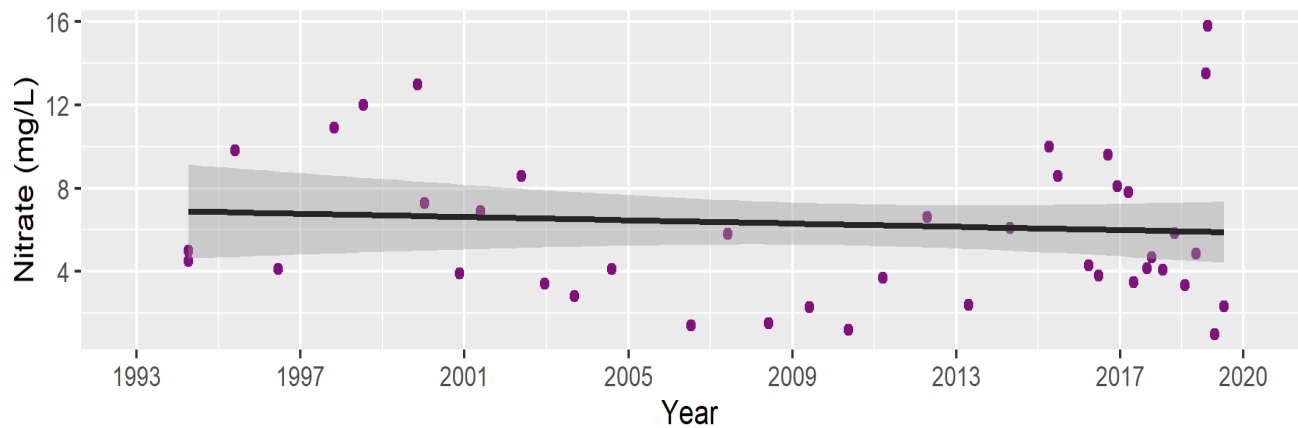
Nitrate Levels at HOBACKMARKET



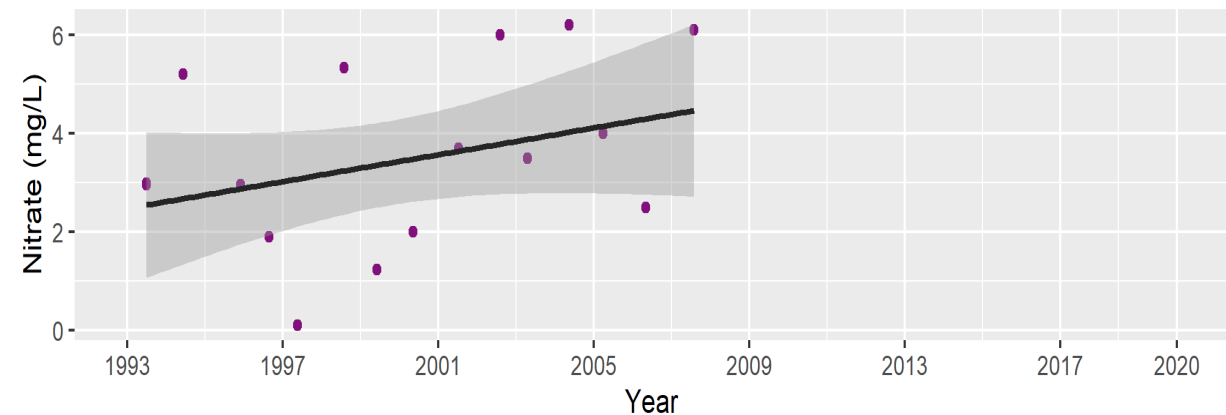
Nitrate Levels at J-W



Nitrate Levels at Hoback RV Park

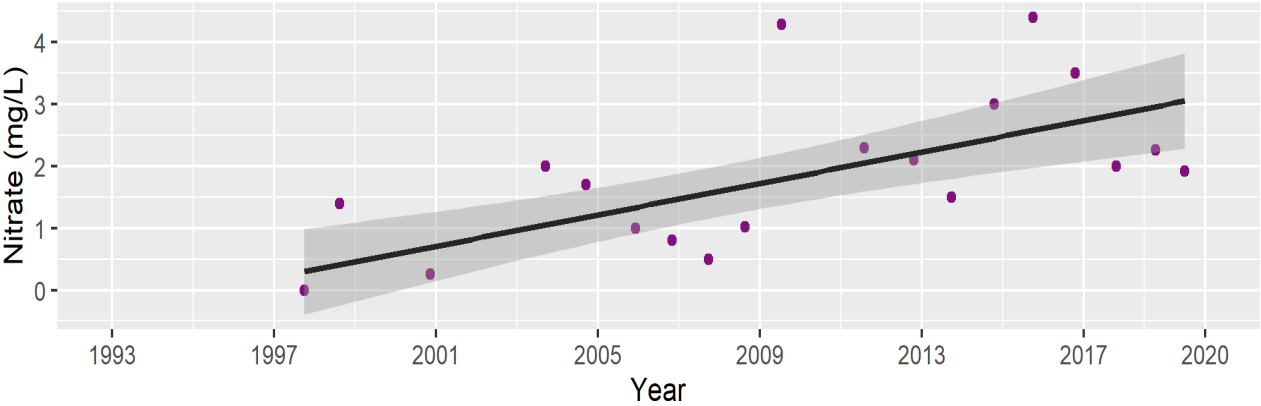


Nitrate Levels at HOBACK RIVER RESORT

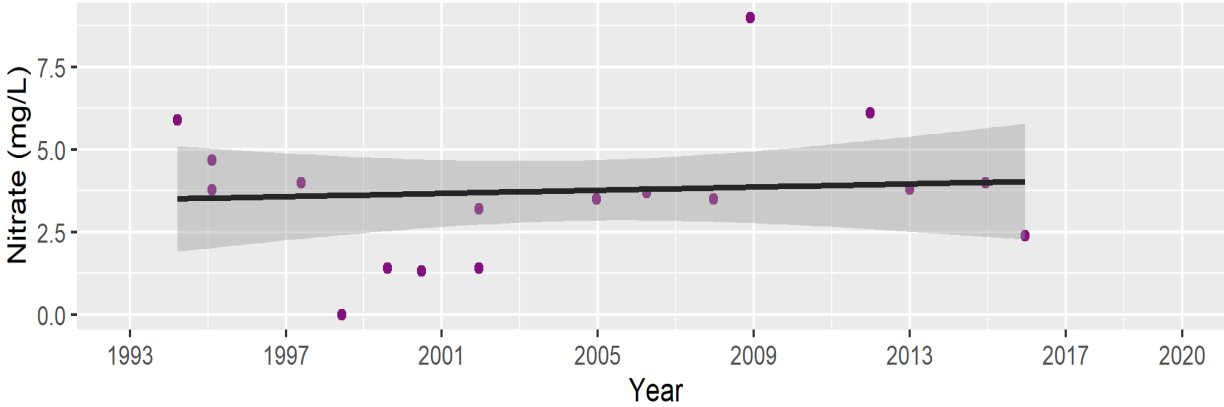


EPA Public Water System Data

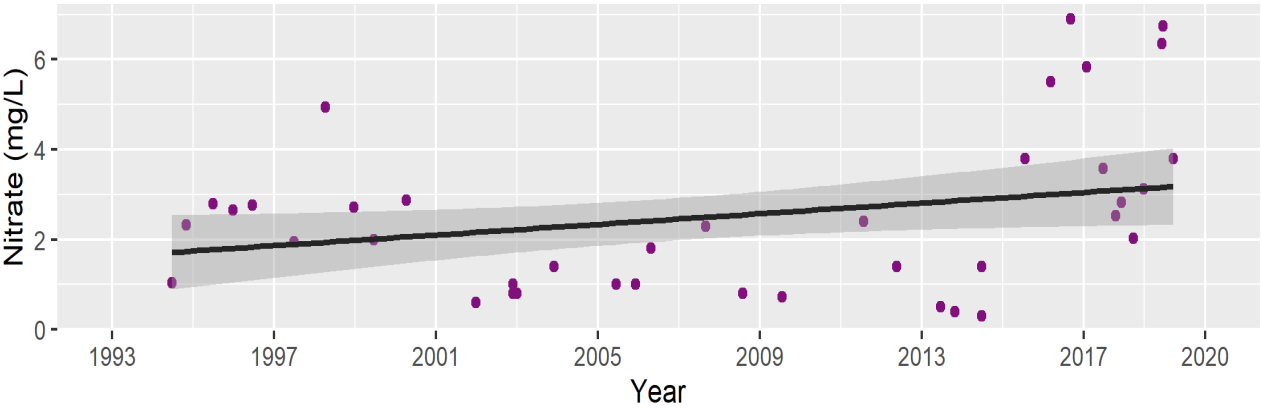
Nitrate Levels at Snake River Park KOA



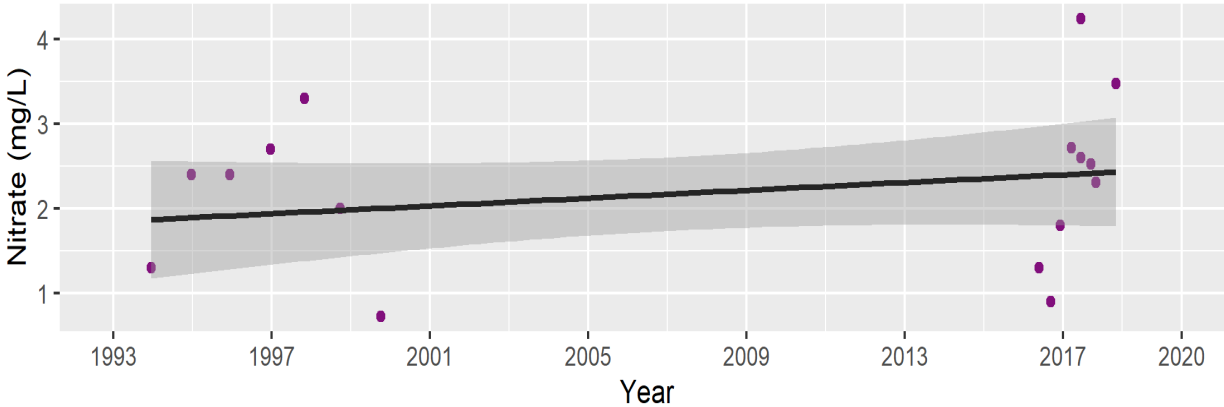
Nitrate Levels at Camp Creek Inn

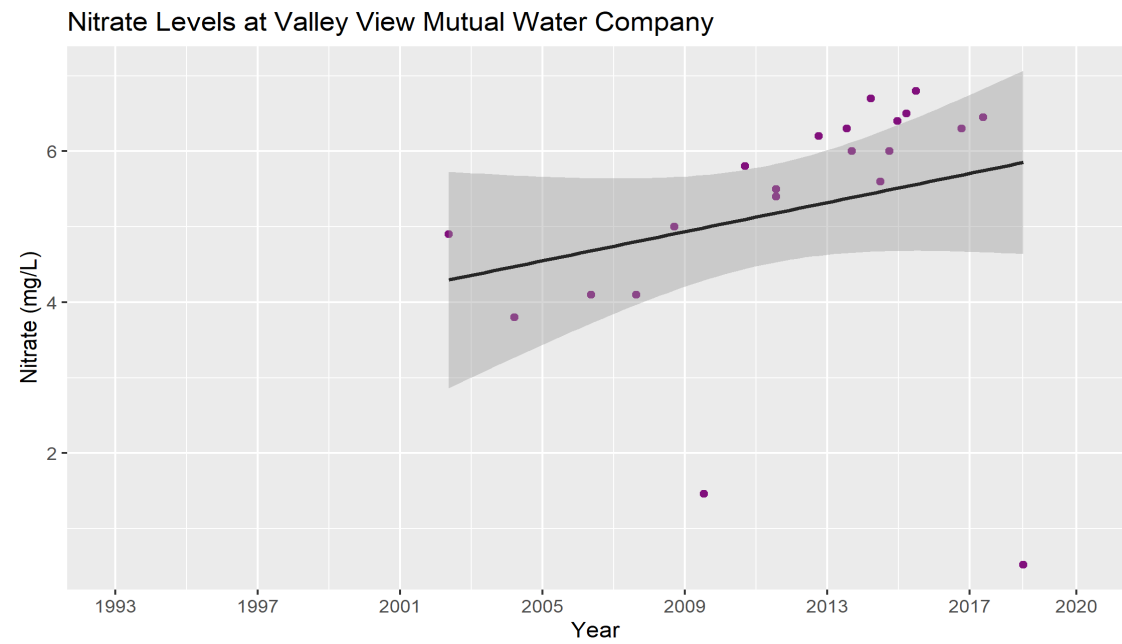
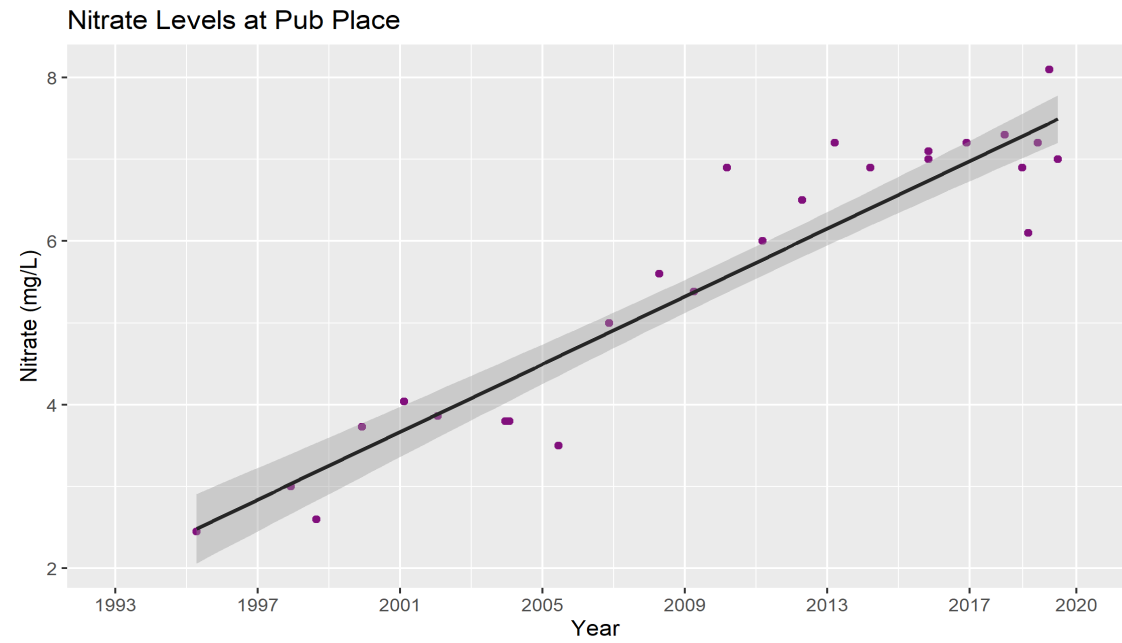


Nitrate Levels at Snake River Mobile Home Park



Nitrate Levels at Old West Cabins





Increased need for treatment

- Many of the public water systems in southern Teton County have failed for nitrate
- Private wells are also being affected
- In some locations, nitrate is still increasing
- Nitrate treatment and mitigation often required
- Comprehensive approaches have been limited



Drinking Water Study

- **Wyoming Water Development Commission/Office Introduction**
 - Technical and financial assistance
- **In the early 2000s, Teton County sponsored a Wyoming Water Development Office Level 1 Study**
 - Looked at options for a community drinking water system
 - Water sources
 - Scope and distribution systems
 - Finances
 - No special district formed, no further study or action
- **In recent years, Hog Island Special District formed, Level 1 Study completed**
 - Followed by district dissolution

Governmental Assistance

- **2018: Increasing concerns moved Teton Conservation District, Teton County Health Department, and Board of Health to begin outreach**
 - A public meeting was held, participants indicated strong support for assistance
 - Outreach to Board of County Commissioners
- **County Commissioners request formal partnership with Teton Conservation District to develop a set of recommendations to increase access to clean drinking water**



Stakeholder Group Formation

- **Steering Committee Forms: Teton County Health, Teton County Public Works, and Teton Conservation District**
 - Hired LegacyWorks Group for facilitation
 - Mailed and online survey
 - Selected stakeholders
 - Completed a free nitrate testing day
- Stakeholder Group has been receiving information to inform the set of recommended actions being presented tonight

LEGACYWORKS
group

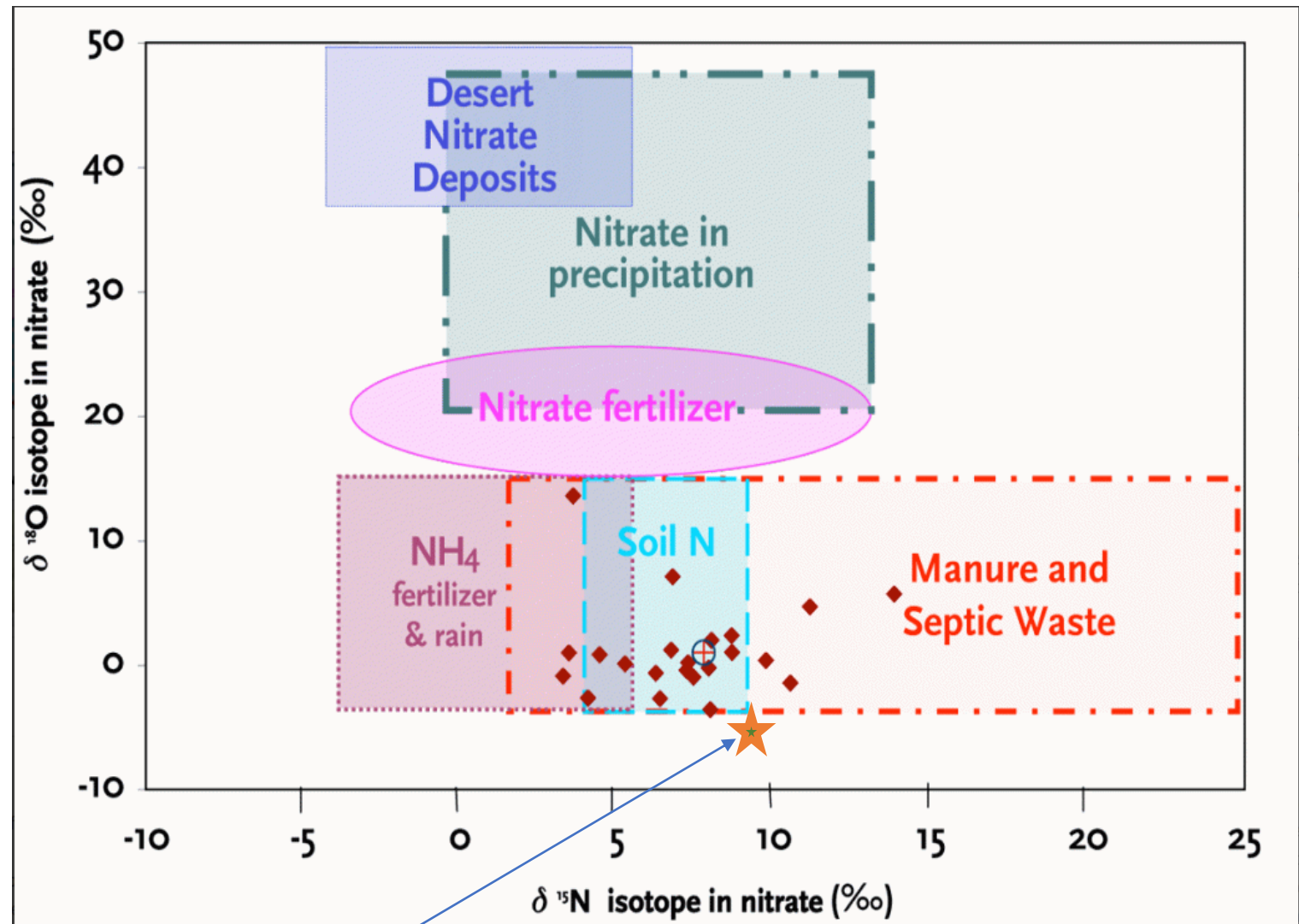
Conclusion



- There is a growing problem regarding drinking water in southern Teton County
- Learning from past experiences, we are hoping to support a community-led effort to meet community needs
- Tonight is an opportunity to help define a project scope that has the greatest community benefit and buy-in

Nitrate Isotopes

Isotopes are variants of a particular chemical element which differ in neutron number, and consequently in nucleon number. All isotopes of a given element have the same number of protons but different numbers of neutrons in each atom.



08/08/2018 J-W sample

C. Project Costs

The *full* project costs of any water supply project that may be pursued will be more than simply the construction cost; it will also include costs associated with preparation of plans and specifications, permitting, mitigation of environmental impacts, legal fees, acquisition of easements, access, and rights-of-way, field engineering (construction inspection, oversight, and coordination), and a construction contingency. This full project cost of the various project alternatives has been calculated on spreadsheets incorporated within this section of the report. A summary table that distills the data within those spreadsheets is shown below. As with the construction cost summary tables shown on the previous page, the project cost summary table provides figures in both 2005 and 2010 dollars (and utilizes the same 7.0% inflation factor applied over the five-year interval).

Table VII-3: Summary of Project Cost Estimates		
Alternative No. and Service Area Description	Project Cost	
	2005 \$	2010 \$
1 Entire Study Area	\$19,311,683	\$27,036,356
2a Hoback Junction	\$9,432,910	\$13,206,074
2b Camp Davis	\$4,808,645	\$6,732,103
2c North of Hoback Junction & West of Snake River	\$5,131,715	\$7,184,400
2d North of Hoback Junction & East of Snake River	\$3,657,110	\$5,119,953
2e North of Hoback Junction Combined Service Area	\$6,835,307	\$9,569,429

Table VIII-1: Funding Scenario No. 1

Assumptions:

1. Supply, transmission, and storage infrastructure financed through WWDC 50% grant-50% loan financing, with 30-year, 6% interest loan terms, repaid entirely by system users.
2. Distribution infrastructure financed through DWSRF, SLIB-administered 2.5%, 20-year loan repaid entirely by system users.

[illegible]

Table VIII-2: Funding Scenario No. 2

Assumptions:

1. Supply, transmission, and storage infrastructure financed through WWDC 67% grant-33% loan financing, with 30-year, 4% interest loan terms, repaid entirely by system users.
2. Distribution infrastructure financed through DWSRF, SLIB-administered 2.5%, 20-year loan repaid entirely by system users.

[illegible]

Table VIII-5: Funding Scenario No. 5

Assumptions:

1. Supply, transmission, and storage infrastructure financed through WWDC 67% grant-33% loan financing, with 30-year, 4% interest loan terms, repaid entirely by system users.
2. Distribution infrastructure 100% financed through local Specific Purpose Excise Tax (SPET) revenues.

[illegible]

Table VIII-6: Funding Scenario No. 6

Assumptions:

1. Supply, transmission, and storage infrastructure financed through WWDC 67% grant-33% loan financing, with 30-year, 4% interest loan terms, repaid through utilization of local Specific Purpose Excise Tax (SPET) revenues.
2. Distribution infrastructure 100% financed through local Specific Purpose Excise Tax (SPET) revenues.

[illegible]